ALL-STREET! HELMETS: The Vital Facts

MOTORCYCLIST

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CRUISE MISSILE!
Honda's Mighty V65 Magna

1000cc Triumph Four
Muscle bike. Get used to the term, because if Honda's V65 sales figures are any indication, it's a phrase—and a class of motorcycle—we're going to be hearing a lot of in the future.

Oh, there have been muscle bikes before, most notably the Z-1 Kawasaki, but none so narrowly focused, so carefully aimed at the American stoplight-to-stoplight motorcycle buyer. We all got excited about the Interceptor, with its racetrack-designed chassis and its 16-inch front wheel, but Honda brought precious few Interceptors into the country. They knew the roadrace clone would get the big press. They also knew the sales of a chopper-style bike that could run the quarter-mile in 11 seconds or less would make Interceptor sales look like a drop in the corporate bucket.

An Interceptor's engine is just a good way to push the chassis from one corner to the next, in the eyes of most of its buyers. The V65 is 180 degrees out of phase with that; its chassis serves to hold the smoothest, torqueiest monster of an engine off the ground. The 1098cc engine completely dominates any rider's impression of this motorcycle; compared with the ferocity of the power plant, niggling considerations like cornering fade into the background.

From a distance, the engine is a dead ringer for the V45 engine found in the Sabre and smaller Magna. Honda has kept all the design features that have made the V45 the premier engine. It just moved the configuration up scale. The V45 is uncannily smooth, almost boringly flexible in power application and, in its Interceptor incarnation, the fastest 750 out there. The V65 is much, much more. It is, quite plainly, the strongest engine ever crammed into a production motorcycle chassis.

The GS1100 Suzuki, the GPz1100 Kawasaki, and the Kawasaki Turbo can be found in close proximity to the V65 at the end of a quarter-mile run; the winner in an all-out standing start dragrace would most likely be the bike with the quickest, lightest rider. But in day-in, day-out riding, the V65 overwhelms the opposition. Its seamless lunge of low- and midrange horsepower makes it the bike to beat on the street. One whack of the throttle in the lower half of the gearbox is enough to send the V65's fat rear tire up in smoke or launch the front wheel like a bottle rocket. Our V65 ran the quarter-mile in 11.21 seconds, with a terminal speed of 122.0 mph, on a day with an almost total lack of traction at the starting line. Our dragstrip tester was forced to tip-toe away from the lights using very little of the power available. Another problem that slowed the V65 was the weather; the temperature was above 85 degrees in the shade, putting less power-producing oxygen in the air. With the results corrected for a standard day (sea level, 29.92 inches atmospheric pressure, and 59°F) the V65 would theoretically have run an 11.04 at 124.0 mph, without taking the lousy traction into consideration.

We have no way of correcting a roll-on for temperature and pressure, but the fast quarter-mile time, smooth power curve, and good carburetion the engine displayed in our on-the-road testing lead us to believe that the big Magna could at least hold its own against the best the competition has to offer in the midrange power department.

We do our roll-on testing in top gear, and here the V65's tall sixth gear hurts it; it could do no better than 82 mph through the traps after a 200-yard run from 50 mph. We also tested the V65 in fifth gear, which more closely approximates the gearing of most big street bikes in their fifth ratios, and the runs averaged 86 mph, still behind the Suzuki 1100 Katana and the Honda CX650 Turbo. Why? The temperature at the dragstrip was much higher than when we tested the Suzuki, and the Honda Turbo has an incredible power surge just at the rpm range used in the roll-on test. The Turbo may make it through the traps faster, but the V65 has nearly the same torque output all through its rev range, while the Turbo lags, then peaks, and finally runs out of steam on the top.

The engine, as we said, looks like the V45, but there are no common parts. The V45 and the V65 were evidently designed on separate sheets of paper, but the two sheets were lying on the same drafting table. The two liquid-cooled cylinder banks meet at the same 90-degree angle, and the V meets the lower cases at the same angle as the Sabre's and the V45 Magna's. The three shaft-drive Honda V4s carry their front pairs of cylinders almost parallel to the road, a la Ducati, with the rear pairs angled just a few degrees aft of vertical. The V65 engine is 30mm longer than the V45's and 29mm wider, but the difference is not obvious until you catch sight of the V65 logo on the side panel—or twist the throttle.

In what has become, in one short year, accepted Honda V-4 practice, the forged 360-degree crankshaft rides in four plain bearings, with each bearing shell held in place with four hardened bolts. The outer cylinder castings are integral parts of the upper half of the cases, and the steel cylinder liners stand free in their respective water jackets, held in position by the floor of the water jacket at the bottom and the head assembly at the top. The bores measure 79.5mm across, and stroke is 55.3mm, providing the engine with a relatively slow average piston speed at high revs, for excellent durability. This also leaves plenty of room in the combustion chambers for a quartet of valves at the fashionably narrow included angle of 38 degrees. The narrow angle valve allows a compact combustion chamber, with the plug in the center. This, along with the uniform temperature afforded by the well designed cooling system, allows a compression ratio of 10.5:1 without fear of detonation on 87-octane unleaded.

Each pair of cylinders has its own pair of camshafts, riding on a film of pressurized oil in the unadorned aluminum of the head casting, driven off the center of the crank by automatically tensioned si.
This is it: the torquiest, most flexible motor you can buy in a motorcycle chassis. It looks like the V45 engine, but every part is new.

Carbs are Keihin CV units; ultrathin Hydrin diaphragms eliminate the need for accelerator pumps. Two are downdraft, two side draft.

A TRAC anti-dive unit acts on the left fork slider only. Fork tubes are 41mm across; a cast brace holds the two sliders in register.

Instrument layout is traditional, with a couple of LCDs thrown in for good measure. We'd gladly replace the gear indicator with a fuel gauge.

lent link-plate chains. One lobe of a camshaft operates two valves, by pushing on a forked cam follower. Each valve's lash is adjusted by the screw-and-locknut method.

It may seem odd that Honda chose to give its Nighthawks and the 750 Shadow the trick automatic hydraulic lash adjuster and to leave the company's cruise-missile flagship, the V65, with simple old screw-type adjusters. According to a Honda spokesman, the one supplier qualified to make the lash adjusters was running at full capacity this year just to provide the bits for the smaller bikes. Honda simply couldn't buy enough of the adjusters to equip all the V-4s it planned to sell. The valve sizes have gone up in proportion to the displacement of the V65; the V45s use 26mm intakes and 23mm exhausts, while the V65 needs 30mm and 26mm poppets.

Cam timing is the same on all the '83 V-4s, Interceptor and V65 included. Honda's engineers have apparently decided on a given state of tune for acceptable reliability in the Vs, and to get more power, they will just add displacement to taste. Besides enough horsepower to drive the shaft-type rear end as fast or faster than any other motorcycle currently produced, Honda's higher-ups decreed that the V65 should have a long life span; by Honda's calculations, a well cared V65 should go 100,000 miles, if the owner can afford the rear tires.

The one significant design change is in the clutch. The V45s use a conventional clutch with coil springs holding the plates together, but the V65 uses a diaphragm spring design, much like that used in the 750 Shadow. The diaphragm design is stronger for a given clutch width. Honda's engineers wanted to keep the V65 as narrow as they could, but knew they had to build a huge reserve of clutch capacity into a bike with the torque output, and the intended customers, of the 1100. The clutch is driven off the right end of the crank, and torque is fed into the clutch basket through one of Honda's ingenious spring-loaded split gears, to keep gear whine and shock loads to a minimum.

The clutch has another trick feature, the sprag-clutch controlled deceleration mode that eliminates all but three and a half of the friction plates from the drive-train whenever the engine is being spun by the rear wheel. This lets the clutch slip enough to keep the rear wheel hooked up when the rider snaps the throttle shut in a low gear or executes a sloppy downshift; it limits engine braking to keep the V65's shaft-enhanced rear-wheel bounce tendencies to an acceptable minimum.

The V65 suffers, to a much greater degree than the V45s, from excessive drive-train lash. The CV carbs are slightly abrupt as the throttle is cracked open, and this, added to the lash problem, gives a very lurchy ride in town; until the rider learns to anticipate his throttle needs and modulate his forward progress with the rear brake, a Dramamine...
prescription may be in order. The transmission is not the slickest shifter around, with a slightly clunky feel, but we missed few shifts.

Like the Sabre and the 750 Magna, the V65's gearbox is a six-speed. With the 1100's amazing torque spread, this hardly seems necessary, but it lets the engine spin at a lazy 3264 rpm at 60 mph in overdrive sixth, all with enough acceleration to handle most common traffic situations. The quiet, rubber-mounted motor is essentially vibration-free at any speed above a walking pace; any of the top three gears works just fine out on the freeway, but sixth leaves you almost unable to detect the engine whirring underneath you.

Like the V45, the V65 uses a brace of four CV carburetors, two downdraft, two sidedraft, with new ultrathin Hydrin rubber diaphragms for quick response and lighter weight. Because the diaphragm moves so easily, the maximum-strength Magna can make do with lighter floating pistons in the carbs and also do without accelerator pumps, contrary to Honda's own sales brochures. The air cleaner is mounted up under the deceptively small upper gas tank; there's another tank fitted under the seat to give the Magna acceptable range, with an electric diaphragm-type fuel pump to get the fuel up into the carbs. The fuel system has one deficiency we find astounding in a top-of-the-line cruiser. Honda did not provide a fuel gauge or a reserve position on the petcock. This is a serious omission for anyone touring on an interstate, considering that the tank has a paltry 15-mile range after the low-fuel light—the only fuel indicator—comes on. We are told you can adjust the reserve's light-up point by bending the lever on the sending unit, but we'd much prefer a real reserve system with a 30-mile or greater margin.

The V65's chassis is far from dainty; it's a long (62.8-inch wheelbase), tall (32.9-inch seat height), heavy (591-pound wet weight) battle-ax of a bike. That doesn't mean the Magna is a bear to ride; the steering is, in the manner of all Honda V-4s, surprisingly light even in stop-and-wait traffic. The steering head is welded to the two backbone tubes at a 30-degree angle, with very large 41mm fork tubes hung on it. The steering head is long; there is almost a foot of it between the upper and lower triple-clamps, to make the front end as rigid as possible. It would be criminal to send out an engine like the V65's without enough braking capacity to keep it in line, and the Magna has the stoppers; two 276mm discs, bolted directly to the cast front wheel, are slowed by the standard Honda twin-piston calipers.

The left fork leg carries an adjustable TRAC anti-dive unit; a cast aluminum fork brace is designed to hold the two sliders in close register, making a double-TRAC system unnecessary. The extra plumbing in the left leg gives it about twice as much compression damping as in the right leg, even with the rider's fingers off the brake lever. The fork legs have integrated air-pressure plumbing; Honda recommends zero to six pounds of atmosphere, pumped in through the filler cap behind the left fork tube.

Fat tires are the fashion on A) Hondas, B) cruiser-style bikes, and C) big-displacement road-rippers in general. Being all three, the V65 comes with porky Bridgestones, a 110/90-18 on a WM4 rim at the front and a 140/90-16 on a WMS at the rear. The tire compounds are quite hard for long wear, and, as a result, they are not nearly as sticky as some of the better OEM and aftermarket rubber available.

High-tech models like the Sabre and Interceptor are perceived to need single-shock rear ends on their brochures' feature lists, but the cruiser-styled Hondas are all double-shockers, because the laid-back Harley look demands those big chrome struts which connect the rear wheel to the rest of the bike. Honda chose, wisely, to give the V65 state-of-the-adjusting-art shocks, with rider-tunable adjustments for preload, compression damping, and rebound damping. There are five preload settings, four rebound-damping settings, and two compression-damping choices; rebound damping is changed by rotating a collar at the top of the shock body and compression damping by twisting a small knob at the rear of the lower shock body.

The bolt-upright seating position and the high and narrow bars conspire to make the V65 feel like a tall barber's chair, footrests and all. The pegs are not as ridiculously far forward as the 750 Shadow's, and that's good. The seat is narrow, and the step is too far forward for tall riders; they always felt the most comfortable riding position would have been two inches behind the seat step. The stock bar is adjustable fore and aft like the CB1100's. It can be replaced by a standard tubular-type bar, but the high
HONDA V65 MAGNA

Suggested retail price ..........................$3898
Warranty .........................12 months, unlimited miles
Number of U.S. dealers ..................Approx. 1800
Recommended maintenance intervals ..........8000 miles

ENGINE
Type ......................................Liquid-cooled, transverse
4-stroke 90° V-4
Valve arrangement ......DOHC, 4 valves, operated by forked
 cam followers, threaded adjusters
Displacement .................1098cc
Bore x stroke .................79.5 x 55.3mm
Compression ratio ..........10.5:1
Carburetion ...................4, 36mm Keihin constant-velocity
Ignition ......................Battery-powered, transistorized,
2 magnetic triggers
Lubrication ....................Wet sump, 3.7 qt
Charging output ..............300 watts AC
Battery .........................12V, 18AH

DRIVETRAIN
Primary transmission ............Straight-cut gears, 1.707:1
Clutch .........................Wet, 15 plates
Final drive .........................Shaft, 3.182:1

CHASSIS
Front suspension ..................41mm Showa, 6.3 in. travel;
TRAC anti-dive, adjustment for air pressure
Rear suspension ..................Dual Showa dampers,
4.1 in. wheel travel; adjustments for
spring preload, rebound damping, compression damping
Front brake .........................2, single-action calipers
with dual live pistons, 276mm discs
Rear brake .........................1, single-action caliper
with dual live pistons, 297mm disc
Front tire ..........110/90-18 Bridgestone Mag. Mopus-L303
Rear tire ..................140/90-16 Bridgestone Mag. Mopus-G508
Rake/trail ......................30°/4.1 in. (105mm)
Wheelbase ......................62.8 in. (1595mm)
Seat height, unladen ..........31.0 in. (787mm)
Fuel capacity ......................4.5 gal (17L)
Weight.........................591 lb (268kg) wet;
564 lb (256kg) tank empty
Color ..................Maroon/Blue
Instruments ......................Speedometer, tachometer, odometer,
tripmeter; lights for turn signals, high
beam, neutral; warning lights for oil pressure,
fuel level; LCDs for water temperature
and gear position

PERFORMANCE
Fuel consumption ...................37 to 41 mpg, 38.6 mpg avg.
Average touring range .............174 miles
Best ¼-mile acceleration ..........11.21 sec, 122.0 mph
200-yd top-gear acceleration from 50 mph ........81.5 mph terminal speed
RPM at 60 mph, top gear ..........3264
Calculated speed in
gears at (redline) ................
(10,000) 1st, 60 mph;
2nd, 85 mph; 3rd, 107 mph;
4th, 128 mph; 5th, 153 mph;
6th, 184 mph;
Speedometer error ...............30 mph, actual 28.1;
60 mph, actual 55.9

PHOTOS: RICH COX
The clutch has two points of interest: the sprag clutch-governed split inner hub and the diaphragm spring (lower right). The aluminum inner hub (top row, center) and its complement of plates are always engaged when the lever is untouched; the outer steel hub (top row, right) and its plates disengage under deceleration, allowing the inner hub’s plates to slip during an abrupt downshift. The diaphragm clutch spring, like the 750 Shadow’s, allows a narrower assembly without compromising durability. Ours ran strong through two rough days at the strip.

The 360-degree forged crank carries the four rods on two side-by-side journals; it rides in four main bearings, each sandwiched between the upper and lower case halves by four bolts.

The cylinder heads are similar, in all considerations but size, to the V45’s: compression ratio, valve angle, valve actuation, and even cam timing are the same as in the ’83 VF750s.

The steel cylinder sleeves are cast into aluminum towers, held by the floor of the water jackets below and the cylinder head assemblies above. Liners are boronite, not replaceable.

The fastest Honda is set up stiffly on its suspenders; even with the fork air pressure at zero and the rear shocks set to the lightest preload position, the ride is firm and solid, just on the comfortable side of harsh. The V45 Magna hangs much more loosely on its springs; the smaller bike likes to porpoise and wallow quite a bit on bumpy, twisty roads. With all the horsepower available, Honda’s product planners and test riders felt the V65 should have a much more stable handling platform and, after a considerable development effort, turned it into what can only be termed a real man’s machine. Honda figures the V65 pumps about 116 horsepower at the crankshaft, and all that power has to be fed into a rear-wheel-bouncing shaft-drive arrangement. The engineers tried to keep the shaft effect under control by making the swingarm as long as possible, but there was only so much they could do. With a given amount of rise-and-fall force imparted by the shaft-drive system, stiffer springs will control the wheel better than soft ones—so stiffer it is. Still, the shaft makes itself felt in any on-off throttle movements. One test rider swore he felt the suspension bottom out on flat, level ground when he merely shut the throttle decisively, a short time after whacking it open decisively.

As with any high-horsepower shaft-driver, rough pavement hit with the gas on can be very painful; the suspension goes to full extension very quickly in the first three gears, pumping the shock loads right up into the rider’s spine when the asphalt is lumpy. A more controlled hand on the throttle will smooth out the ride considerably, though, and the irresistible flow of torque, even at 2000 rpm, allows a calm rider to upshift early and free up some suspension travel for bump absorption instead of shaft control.

On Southern California’s washboard freeways, the V65 hobbyhorses noticeably; lighter riders especially found the ride too stiff for their liking. The big fork has all the technical credentials to provide friction-free stroking, but in actual practice it places no better than average. A hand held on the fork wiper during freeway jouncing tells a lot; the fork doesn’t float freely, but seems to bind up about every third expansion joint, sending its bounce straight up to the rider. Here the tall and narrow bar helps the rider; it is so high, the rider’s hands move up in an arc before him, and little jolt actually makes it to the rider’s shoulders.

His shoulders will have enough to do just keeping him in position. It takes constant tension in the arms and shoulders for the rider to hold his body up against the wind, and, as the speed rises, so does the force required to hold that posi-
tation. Fast riders’ instincts tell them to crawl forward to get more weight on the front wheel, but the tall tank and upright bar make this very difficult.

To a V65 rider, the corners on a road just serve to connect all those wonderful straightaways. Pushing the long and stiff chassis through a set of rough esses is like forcing a Peterbilt through the crystal-stemware section at Macy’s; something’s got to give. The front end gets unsettled easily and chatters over sharp pavement bumps, and the hard tires do little to inspire the rider to keep leaning after the pegs start slipping over the pavement. On smoother roads, with a smooth rider, the Honda can make surprisingly good time, but the machine was just not built with canyon riding in mind. Once the rider learns the limits of the suspension, a lot of fun can be had on corner-laced roads, but the fun happens on the straights between the turns. The brakes work as well as a monster bike’s should; the front discs are smooth, powerful, and predictable, making it fairly easy to bring the hard front tire to the point of squeal safely and consistently. The rear brake is more powerful than it has to be; it takes a very

OFF THE RECORD

The Monster Magna could make a strong claim for possessing the king of motorcycle engines. It is powerful at any engine speed and responds whenever you touch the throttle. It also handles quite well, providing stability and surprising precision in corners.

But the cramped, awkward riding position and the loads of drivetrain lash ruin it for me. Trying to ride it smoothly is a challenge, and one that I’m willing to forgo because I am so uncomfortable after riding the V65 for any length of time. It’s obviously unnecessary, too, because the Honda V45 Magna doesn’t have the same problems, even though it is basically just a smaller version of the same motorcycle.

—Art Friedman

With barely two months of riding under his belt, a young friend of mine is already so dehydrated from drooling over superbikes that he’s ready to sell his Hawk, stereo, and tuba for a Magna-lour of L.A. at Big Bike he can buy. To bring him to his senses I plucked the Magna from the garage and took him for a Magna-tour of L.A. at night—120-mph runs down a straight stretch of deserted freeway, gut-rupturing launches from stoplights, and huge, yawning clutchless wheelies that lofted the front end like a 747 on takeoff. When we returned home my friend was white-knuckled and shaking. “That bike,” he hissed through clenched teeth, “is completely insane.” He’s right. The V65 is a death wish made metal. The motor is a sultry siren of excess, while the chassis is a naked invitation to dark disaster. The V65 offers thrills for the serious and skilled rider only, and it’s strong medicine for white-line fever. As for its appearance, Cycle Canada has to take the prize for bagging the Magna’s bulgy looks in verbal aspic: “The

V65 Magna looks like a 500-pound magnet that was dragged through a parts bin.” But it came out fast and furious.

—Paul Gordon

Every motorcyclist should get to ride the V65. You’ve got to experience the engine. Don’t bother to ride it around a corner or actually go somewhere on it. Just aim the brute down a deserted stretch of road and let her eat. It will be an experience you’ll remember for a very long time.

—Jeff Karr

Riding the V65 has brought home to me just how much I dislike shaft-drive motorcycles, especially ones with as much horsepower as this one. The first impression I got riding the bike was that it had a wonderful engine; the second impression was how sad it was that the shaft kept me from enjoying it. At low speeds the shaft has the Magna bouncing all over the road, with dramatic altitude changes every 50 feet or so. The Magna’s shaft is not much worse than other manufacturers’ attempts: only the CX650 Turbo and the GS850 come close to escaping my shaft rage.

Enclosed chains and O-ring chains are durable, more efficient, cheaper to manufacture, and hurt handling less. Most first-time bike buyers think shafts are the only way to do it, but the fun happens on the straights between the turns. The brakes work as well as a monster bike’s should; the front discs are smooth, powerful, and predictable, making it fairly easy to bring the hard front tire to the point of squeal safely and consistently. The rear brake is more powerful than it has to be; it takes a very

Honda’s monstrous V65 Magna reminds me of a typically terrifying carnival ride, the one with the height and weight requirement. On the Magna, you recline on your tailbone, feet slightly in front of you, and the handlebar position is identical with the carnival steel bar that swings up and locks you in place.

When the sadistic carnival ride operator flips the switch, you realize you’ve made a grave error in judgment and there is not a damn thing you can do about it. You’ve got a one-way E-ticket to white-knuckle terror, being hurtled in directions you’re not prepared to go and having your arms yanked out of their sockets.

Had I been at the controls of that carnival machine, I probably would have enjoyed myself. Then again, perhaps not. I was at the controls of the V65 and did nothing but punish myself. But that’s because I did everything wrong. For instance, I tried to whistle through bumpy corners, urged on by that brute of a motor, when I should have taken it easy and saved myself for the straightaways. Had I not whacked the throttle open on that hill near the office, I wouldn’t have sore shoulder muscles, and had I not tried to reach Mach I on those bumpy back roads, my back would have been less abused. Had I stuck to humiliating every motorcycle and exotic musclecar I came across at the intersections, I’d bet I would have had a great time.

—Ken Vreeke

Dexter Ford
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good rider to get the rear wheel to the edge of braking adhesion without encountering shaft-accentuated hopping. The combination of the shaft and strong rear brake surprised a couple of our riders; a touch on the brake at the instant the throttle is snapped shut can send the rear wheel screeching and shuddering.

There are no real surprises here; the V65 is not designed to go around corners quickly, nor to keep its rider comfortable on the way across Nebraska. It’s a muscle bike, a hot rod, a Saturday-night dragstrip scorcher, an urban cheap-thrill troller. The V65 delivers all the asphalt-shredding performance its brutish-but-sanitized looks promise. Like many other specialized motorcycles, the V65 can be called on to perform tasks outside its intended performance envelope, but it seems uncomfortable in any role but the one Honda’s dragstrip TV ads define for it. You can ride the V65 to work, you can ride it up the Coast highway, you can ride it across the country, but none of these duties let the V65 stretch its legs and do what it was designed to do. The V65 is built for the moment that late ‘60s musclecar, straight out of Car Craft or Hot Rod magazine, idles up next to you at a stoplight on the outskirts of town, with a fiberglass box on the hood and traction bars under the trunk. It’s built for that delicious moment when your eyes meet the eyes of the anxious driver beside you—and you know he belongs to you.